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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/661,547	09/14/2000	Donald K Harper Jr	BERG-2456	9048

7590 06/05/2002

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EXAMINER

MCCAMEY, ANN M

ART UNIT	PAPER NUMBER
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2833

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/661,547

Applicant(s)

HARPER JR, DONALD K

Examiner

Ann M McCamey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of claims 26-32 is indefinite because there is an inconsistency within the claims. Claim 26 indicates that the connector halves are being claimed. However, the body contains positive limitations directed toward the component and substrate suggesting that applicant intends to claim the combination of the connectors, component and substrate. Applicant is required to clarify what subject matter the claim is intended to be drawn to and the language of the claim must be amended to be consistent with this intent.

For the reason above, "said component" and "said substrate" (recited throughout claims 26-32) lack antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-8, 11, 13-22 and 24-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kozel (GB 2,293,502 A).

Regarding claim 1, Kozel discloses (Fig. 2) a first connector half 10 having a first array of mating elements 23; a second connector half 50, the second connector half having a second array of mating elements 54, and an array of electrical contacts 13 corresponding electrically to said second array of mating elements; whereby mating the first and second connector electrically connects the component 40 to the substrate 30.

Regarding claim 2, Kozel discloses the first connector half being adapted for connection to the substrate via an array of ball type contact portions on the first connector half that form an electrical connection with an array of electrical contacts on the substrate by way of solder reflow.

Regarding claim 3, Kozel discloses the second connector half connects to the component via an array of ball type contact portions 41 on the component that form an electrical connection with an array of electrical contacts on the second connector half by way of solder reflow.

Regarding claim 4, Kozel discloses an array of electrical contacts on the substrate corresponds electrically to an array of ball type contact portions on the first connector half.

Regarding claim 6, Kozel discloses the first array of mating elements corresponds electrically to the second array of mating elements.

Regarding claim 7, Kozel discloses the second array of mating elements corresponds electrically to an array of electrical contacts on the second connector half.

Regarding claim 8, Kozel discloses an array of electrical contacts on the second connector half corresponds electrically to an array of ball type contact portions 41 on the component.

Regarding claims 10, 18 and 25 Kozel discloses an array of ball type contact portions on the component/electronic device is one of a column grid array, ceramic ball grid array, tab ball grid array and plastic ball grid array.

Regarding claims 11 and 19, Kozel discloses a mating element of the first array of mating elements has dual elongations 23, 24 for receiving a single elongation from a mating element of the second array of mating elements.

Regarding claim 13, Kozel discloses the second array of mating elements and an array of electrical contacts are on opposing sides of the second connector half.

Regarding claim 14, Kozel discloses a connector half 50 having an array of mating elements 54 and an array of electrical contacts 13 electrically corresponding to said array of mating elements; and an electrical component 40 having an array of ball type contact portions 41 attached thereto corresponding to said array of mating elements.

Regarding claim 15, Kozel discloses the array of mating elements and array of electrical contacts being on opposing sides of the connector half.

Regarding claim 16, Kozel discloses the array of mating elements corresponds electrically to the array of contact portions.

Regarding claim 17, Kozel discloses the array of contact portions corresponding electrically to the array of ball type contact portion.

Regarding claim 20, Kozel discloses a mating element of the array of mating elements having a single elongation.

Regarding claims 21-22, Kozel discloses the method comprising the steps of mounting a first connector 10 to a the substrate 30; and fusing the fusible elements 41 on the electronic device 40 to an array of mating elements 54 on a second connector 50, said second connector having an array of contacts 13 corresponding electrically to said array of mating elements, said array of contacts being mateable with said first connector; wherein the electronic device is removably attached to the substrate without having to reflow the fusible elements; wherein the fusing step directly fuses the fusible elements to said contacts.

Regarding claim 24, Kozel discloses the fusible elements being part of an electronic device so that the electronic device can removably attach to the substrate without having to reflow said fusible elements.

Regarding claim 26, Kozel discloses a first connector half 10 having a first array of mating elements; and a second connector half 50, said second connector half having a second array of mating elements 54, whereby frictionally mating said first and second connector halves electrically and mechanically connects said component to said substrate.

Regarding claim 27, Kozel discloses said first connector half being adapted for connection.

Regarding claim 28, Kozel discloses the second connector half connecting to the component via an array of ball type contact portions on the component.

Regarding claim 29, Kozel discloses the first connector half comprising an array of connector pairs 23, 24 projecting therefrom, and the second connector half comprising an array of projections 52.

Regarding claim 30, Kozel discloses the connector pairs having an outwardly arced shape.

Regarding claim 31, Kozel discloses the connector pairs having rounded tips.

Regarding claim 32, Kozel discloses the connector pairs having substantially pointed tips.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 9, 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kozel as applied to claims 1 and 21 above, in view of Murphy et al. (US 5,702,255).

Regarding claims, 5, 9 and 12, Kozel discloses the invention substantially as claimed, but does not disclose an array of ball type contact regions on the first connector half. Murphy et al. disclose ball type contact regions 38 between the first

connector half and substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the first connector half of Kozel with ball-type contact regions as Murphy et al. teach to create a standoff between the substrate and the connector.

Regarding claim 23, Kozel discloses the invention substantially as claimed, but does not disclose the fusing step at least partially occurring in the recess of the housing. Murphy et al. teach a fusing step for mating the component to the connector occurring in the recess of the connector housing. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the fusing step occur at least partially in a recess of a housing as Murphy et al. teach to make the apparatus more compact.

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 2/26/02 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the


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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann M McCamey whose telephone number is (703) 305-3422. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (703) 308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


ANN M. MCCAMEY
Examiner

AMM
May 23, 2002